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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/318,268	05/25/1999	HITOSHI MATSUMOTO	Q54505	1128

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EXAMINER
MOUTTET, BLAISE L

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 06/19/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/318,268	MATSUMOTO ET AL.
	Examiner	Art Unit
	Blaise L Mouttet	2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 December 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *27-34 and 36-40* is/are allowed.

6)☒ Claim(s) *1-11,13,14,16-20 and 24-26* is/are rejected.

7)☒ Claim(s) *12,15,21-23 and 35* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 August 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Tadokoro US 5,550,956 and Childers et al. US 6,126,265.

Bullock et al. discloses, regarding claims 1 and 8, an ink cartridge (figure 4) for an ink jet type printing apparatus having a printhead (82), the ink cartridge comprising:

a container (60) having an ink chamber (62) for containing ink therein (column 6, lines 6-8);

an ink supply port (64) for supplying ink from the ink chamber to the print head (82) (column 6, lines 8-11, figure 5); and

a read/write memory device (76) formatted to store data indicative of an environment of use (temperature data) (column 7, lines 4-16).

Regarding claims 6 and 11, the data storing the count of ink drops is related to the time of final ink end (column 7, lines 4-11).

Regarding claims 9 and 10, the date of manufacture and cartridge lifetime are stored in the memory (column 7, lines 4-11).

Bullock et al. fails to disclose storing data indicative of the history of the ink cartridge and data indicative of a cleaning or maintenance operation of the printhead in the ink cartridge memory.

Tadokoro teaches, regarding claim 1, storing history information of a consumable such as an ink cartridge in a printer (see abstract, column 3, lines 38-48).

Tadokoro teaches, regarding claim 2, that the history information includes data of worn conditions which is inherently related to a number of reproductions of the ink cartridge (column 1, lines 20-28).

Childers et al. teaches storing data indicative of cleaning of a printhead in an ink cartridge memory (see abstract, column 5, lines 5-35).

It would have been obvious for a person of ordinary skill in the art to store data indicative of ink cartridge history as taught by Tadokoro in the memory device of Bullock et al.

The motivation for doing so would have been to shorten the operation time of maintenance and inspection as taught by column 1, lines 20-28 of Tadokoro.

It would have been obvious to store the cleaning data as taught by Childers et al. in the memory device of Bullock et al.

The motivation for doing so would have been to alter the printhead servicing routine to correspond to new consumable parts as taught by column 3, lines 3-5 of Childers et al.

2. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Sakuma US 5,663,750.

Bullock et al. discloses an ink cartridge (figure 4) for an ink jet type printing apparatus having a printhead (82), the ink cartridge comprising:

a container (60) having an ink chamber (62) for containing ink therein (column 6, lines 6-8);

an ink supply port (64) for supplying ink from the ink chamber to the print head (82) (column 6, lines 8-11, figure 5); and

a read/write memory device (76) formatted to store data related to a minimum ink amount to be contained in the cartridge and data indicative of a residual ink amount (column 7, lines 4-16).

Bullock et al. fails to disclose altering an ink discharge operation according to the minimum and residual ink amounts.

Sakuma teaches altering an ink discharge operation in accordance with a minimum and residual ink amount contained in an ink container (see abstract).

It would have been obvious for a person of ordinary skill in the art at the time of the invention to alter an ink discharge operation in accordance with the minimum and residual ink amount contained in an ink container of Bullock et al. as taught by Sakuma.

The motivation for doing so would have been in order to avoid the problem of printing blank or faded images when the ink amount is small as taught by column 1, lines 32-35 and 58-61 of Sakuma.

3. Claims 14, 16-20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Childers et al. US 6,126,265.

Bullock et al. discloses, regarding claims 14, 16-18, 20 and 24, an ink jet printing apparatus (figure 5) comprising:

a print head (82) for ejecting ink droplets;

an ink cartridge (60) containing ink therein for supplying ink to the printhead;

a memory device (76) storing data related to the environment of use (temperature data), condition of use (pumping algorithm), ink depletion (ink drop count), a preset minimum ink amount (prerecorded supply threshold) and residual ink (remaining ink estimate) of the ink cartridge (column 7, lines 4-16);

a control device (86) for controlling charging of ink into the printhead (by means of the ink pump) in accordance with data stored in the memory (column 7, lines 12-22, column 6, lines 10-20).

Bullock et al. fails to disclose, regarding claims 14, 19 and 24, that the control device determines whether cleaning is necessary based on the data in the memory or that the memory includes data relating to a maintenance processing.

Childers et al. discloses a control device (30) that determines whether cleaning is necessary based on the data in an ink cartridge memory (28) and that the memory includes data relating to a maintenance processing (see abstract, column 5, lines 20-35).

It would have been obvious to a person of ordinary skill in the art to have the control device of Bullock et al. determine whether cleaning is necessary and include

maintenance processing data in the memory device of Bullock et al. as taught by Childers et al.

The motivation for doing so would have been to alter servicing routines to be appropriate to new ink cartridge types as taught by column 3, lines 3-5 of Childers et al.

4. Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bullock et al. US 5,699,091 in view of Childers et al. US 6,126,265, as applied to claim 24, and further in view of Kobayashi et al. EP 841 173.

Bullock et al., as modified, fails to disclose executing a cleaning operation when the residual ink amount is greater than the sum of the preset minimum ink amount and amount of ink necessary for a cleaning operation and executing a brief cleaning operation when the residual ink amount is greater than the preset minimum ink amount but less than the sum of the preset minimum ink amount and an ink amount consumed during cleaning.

Kobayashi et al. teaches executing a cleaning operation (figure 9, step S163) when the residual ink amount is greater than the sum of the preset minimum ink amount and amount of ink necessary for a cleaning operation and executing a brief cleaning operation (figure 9, step S160) when the residual ink amount is greater than the preset minimum ink amount but less than the sum of the preset minimum ink amount and an ink amount consumed during cleaning.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to execute the cleaning operations as taught by Kobayashi et al. in the apparatus of Bullock et al., as modified.

The motivation for doing so would have been to prevent the print consumables from being damaged by attempting to suck more ink than present in the ink cartridge as taught by page 3, lines 10-13 of Kobayashi et al.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-11, 13, 14, 16-20 and 24 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 19 of U.S. Patent No. 6,361,138 in view of Bullock et al. US 5,699,091.

Claim 1 of the '138 patent recites limitations directed to an ink cartridge comprising a container and rewritable memory device which stores data indicative of the history and the cleaning/maintenance of the ink cartridge.

This claim is relevant to claims 1-11 and 13 of the present application.

Claim 19 of the '138 patent recites limitations directed to an ink jet printing apparatus comprising an ink cartridge including a container and rewritable memory device which stores data indicative of the history and the cleaning/maintenance of the ink cartridge, an inkjet printhead and a cleaning system.

This claim is relevant to claims 14, 16-20 and 24 of the present application.

The subject matter lacking from the claims of the '138 patent but included in the present claims include stored environmental data (temperature data), minimum ink amount data and residual ink amount data in the memory device and an ink supply port for the ink cartridge.

Bullock et al. demonstrates that an ink supply port (64) is common for an ink cartridge to supply ink to a printhead (figure 5) and storing the claimed data enables the several control functions such as calculating the remaining amount of ink and determining if the ink cartridge is proper (column 7, lines 4-32).

It would have been obvious to a person of ordinary skill in the art to include the data specified by Bullock et al. in the memory device claimed by the '138 patent and include an ink supply port in the ink cartridge claimed by the '138 patent.

The motivation for doing so would have been to supply ink to the print head for printing, to calculate the remaining amount of ink in the ink cartridge and to determine if the ink cartridge is proper as taught by column 7, lines 4-32 of Bullock et al.

Additional Prior Art

6. Childers et al. US 6,375,301 is a US equivalent of Childers et al. EP 854044 which was previously made of record. Childers et al. discloses a memory device on both an ink cartridge and a flush cartridge and a control device which flushes out ink residue in the printhead cartridge utilizing the flush cartridge and the integral memory placed on the flush cartridge. However Childers et al. is not concerned with the reproduction of ink cartridges as indicated by the use of new cartridges to replace old used cartridges after the flushing (see column 3, line 42 - column 4, line 21). Therefore, without knowledge of applicant's disclosure, there is no clear motivation to include history data of the ink cartridge memory device or control a reproduction of the ink cartridge in response to stored memory data as claimed by applicant in the device of Childers et al.

Allowable Subject Matter

7. Claim 12, 15, 21-23 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 27-34 and 36-40 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

The primary reason for the indication of the allowability of claim 12 is the inclusion therein, in combination as currently claimed, of the limitation that the memory device stores data indicative of (as opposed to merely related to) the number of

reproductions of the ink cartridge which can be effected. This limitation is found in claims 12 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The recitation that the data is indicative of rather than just related to the number of reproductions of the ink cartridge is important since it was known in the art at the time of the invention that data relating to a number of ink cartridge refills (such as the number of drops emitted by a printhead) is stored on memory of an ink cartridge (See for example column 12, lines 47-67 of Murray et al. US 6,000,773). However, as disclosed by applicant, data which is indicative of the number of reproductions (such as the number of refills of the ink cartridge rather than simply the number of ink drops ejected) is directly related to whether the ink cartridge is capable of being reproduced or reused which was an unseen advantage to the prior art of record.

The primary reason for the indication of the allowability of claim 15 is the inclusion therein, in combination as currently claimed, of the limitation that the control device judges from the data in memory whether or not the attached ink cartridge is a reproduced one. This limitation is found in claim 15 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 21-23 and 33-35 is the inclusion therein, in combination as currently claimed, of the limitation of a control device which judges from the data stored in said memory device whether a next reproduction of the ink cartridge is possible. This limitation is found in claims 21-23 and

33-35 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 27-32 is the inclusion therein, in combination as currently claimed, of the limitation of a control device which controls a reproduction processing apparatus in accordance with said data, and causes at least data, representing the number of reproductions and the time of reproduction, to be stored in said memory device after the reproducing operation is finished. This limitation is found in claims 27-32 and is neither disclosed nor taught by the prior art of record, alone or in combination.

The primary reason for the indication of the allowability of claims 36-40 is the inclusion therein, in combination as currently claimed, of the limitation of the steps of evaluating the ink cartridge data using the reproducing control device and determining whether regeneration of the ink cartridge is possible. This limitation is found in claims 36-40 and is neither disclosed nor taught by the prior art of record, alone or in combination.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

8. Applicant's arguments contained in paper number 15 entered December 21, 2001 have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Blaise Mouttet whose telephone number is (703) 305-3007. The examiner can normally be reached on Monday-Friday from 8:30 a.m. to 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow, Jr. Art Unit 2853, can be reached on (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Blaise Mouttet June 10, 2002

BM June 10, 2002

John Barlow
Supervisory Patent Examiner
Technology Center 2800